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CYANO AND CF3 DERIVATIVES OF 2-ARYL- AND 2-THIENYLQUINAZOLINE: SYNTHESIS AND STUDY OF OPTICAL PROPERTIES

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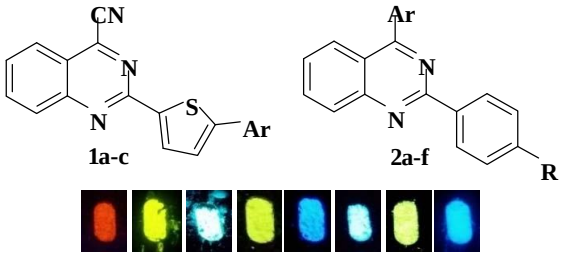
Abstract. Organic nonlinear optical (NLO) materials have attracted widespread attention owing to their potential applications in modulation of optical signals, medicine, imaging, laser technology, data storage, telecommunication etc.[1,2]

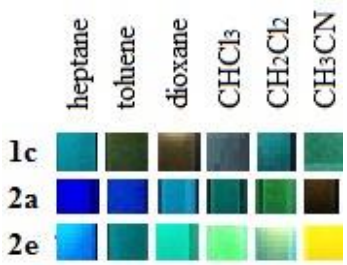


The novel 2-thienylquinazoline derivatives **1a-c** containing cyano-group at position 4 as well as quinazolines with 4-cyanophenyl **2a-c** or 4-CF_3-phenyl **2d-f** substituents at position 2 have been synthesized in good yields using early described methods.[3-5]

1: ***Ar*** *= 4-(diethylamino)phenyl (**a**),*
*4-(diphenylamino)phenyl (**b**),*
*4-(9H-carbazol-9-yl)phenyl (**c**);*

2: ***R*** *= CN,* ***Ar*** *= 4-(diethylamino)phenyl (**a**),*
*4-(diphenylamino)phenyl (**b**),*
*4-(9H-carbazol-9-yl)phenyl (**c**);*
R *= CF_3,* ***Ar*** *= 4-(dimetylamino)phenyl (**d**),*
*4-(diphenylamino)phenyl (**e**),* **1b** **1c** **2a** **2b** **2c** **2d** **2e** **2f** *4-(9H-carbazol-9-yl)phenyl (**f**).*

	φ, %		
	toluene	**$CHCl_3$**	**CH_3CN**
1c	22	10	8
2a	63	63	<1
2b	70	72	16
2c	31	64	20
2d	69	76	12
2e	65	75	31
2f	15	53	28



Emission solvatochromism

The photophysical properties as well as cyclic voltametry measurements for the quinazoline derivatives **1**,**2** were studied.

References

1. Liu, B., Zhang, H.-L., Liu, J., et al. **(**2007).Novel pyrimidine-based amphiphilic molecules: synthesis, spectroscopic properties and applications in two-photon fluorescence microscopic imaging.*J. Mater. Chem.* Vol. 17, pp. 2921–2929.
2. Cinteza, L.-O., Marinescu, M. (2018). Synthesis and nonlinear studies on selected organic compounds in nanostructured thin films, Advanced surface engineering research, *Intech Open*, doi:10.5772/intechopen.79522.
3. Nosova,E. V., Moshkina,T. N., Lipunova, G.N., et al.**(**2018).Synthesis and photophysical studies of novel 2-[5-(4-diethylaminophenyl)thiophen-2-yl]quinazoline derivatives,*Mendeleev Commun*, Vol. 28, Iss. 1, pp. 14–16.
4. Nosova,E. V., Moshkina,T. N., Lipunova, G. N., et al.**(**2018).Synthesis and photophysical studies of novel 4-aryl substituted 2-phenyl-, 2-(fluoren-2-yl)- and 2cymantrenylquinazolines. *Mendeleev Commun*. Vol. 28, Iss. 1. pp. 33–35.
5. Achelle, S. RodríguezLópezJ., Guen F.R. (2014). Synthesis and photophysical studies of a series of quinazoline chromophores. J. Org. Chem. Vol. 79, pp. 7564–7571.

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